



Space Stations of the Future

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Office of Technology, Policy and Strategy (OTPS)

Overarching Goal
– Help Support
the *Why, What,*
and *How* of
NASA

Working in collaboration across
NASA and the broader space
community...

...Provide NASA leadership with
data- and evidence-driven advice
to develop and shape

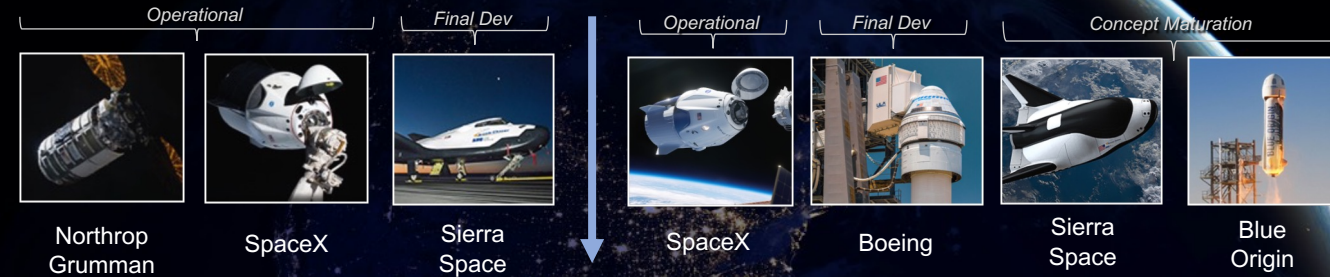
- policy (what NASA should do
and why),
- strategy (how should NASA do
what it does), and
- technology (how to best
develop/leverage the right
technology)



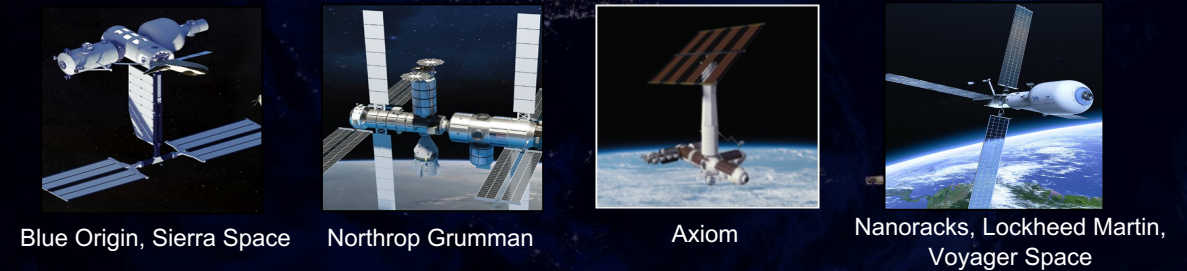
Vision for LEO Economy: A World of New Possibilities

- NASA is one of many customers in a robust low-Earth orbit (LEO) economy
- Commercially-owned and operated transportation for cargo and crew
- Commercially-owned and operated LEO destinations that are safe, reliable, and cost-effective
- Regular production, distribution, and trade of goods and services
- Ongoing research and science activities including a LEO National Lab
- Continuation of human spaceflight exploration objectives
- Sustained presence and U.S. leadership in LEO

COMMERCIAL CARGO & CREW TRANSPORTATION



COMMERCIAL LEO DESTINATIONS

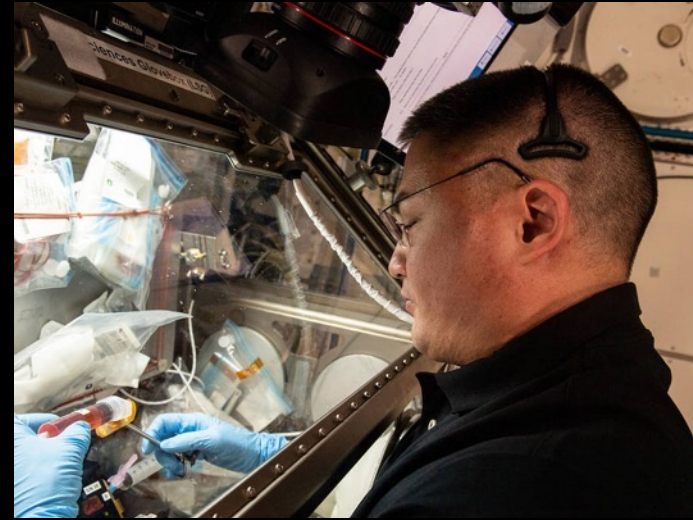


More Elements of a Strong LEO Economy



NASA's Future LEO Needs

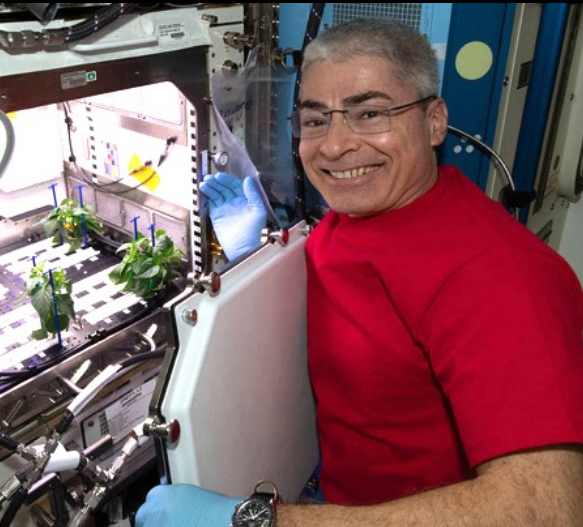
- Continuous accommodations and training for at least two crew members
- The ability to support a national orbiting laboratory
- Conducting approximately 200 investigations annually to support human research, technology demonstrations, biological and physical science



Science



Human Research



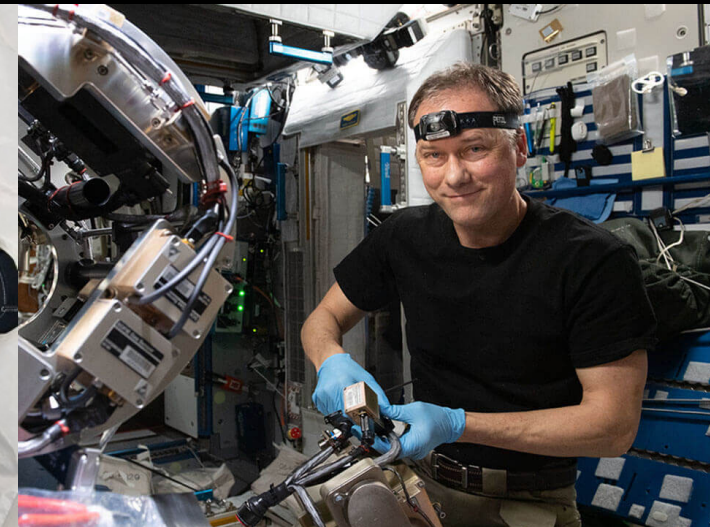
Physical and Biological Research



Technology Demonstrations



Crew Accommodations and Training



National Lab Services

Model: Connect Supply to Demand



Outreach, activity selection, etc.

Payload integration, flight manifestation, etc.

Demand

Model

Supply

National Lab
Users of the
Future

Step 1:
Getting in
the door

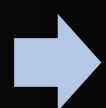
Step 2:
Once in the
door

Step 3:
Getting out
the door

Commercial
Owned
Platform /
Vehicle

Indirect path to influence activities
Direct path to conduct activities

*Resource allocation,
process facilitation, etc.*



OTPS study to inform NASA's options for facilitating government funded activities in the post-ISS LEO ecosystem.





Model Attributes



Infrastructure



Stakeholder roles



Process for access



Agreements between users & providers

Community Values



Ability to meet NASA's needs



Adaptability



Opportunity for collaboration



Market sustainability



Equity & accessibility

Models for Facilitating Government-Funded Activities in the Post-ISS LEO Ecosystem

Goal: Identify potential models to facilitate government-funded or subsidized activities in a National Lab on a commercial LEO platform

Method: Scenario-driven analysis to rate distinct models based on how they may perform in the 2030 timeframe

Findings: Six illustrative models identified with more to less government oversight that can be further adjusted to meet leadership priorities



Model 1: Anchor Tenant

Long-term agreement for leasing space on a commercial platform



Model 2: Government Research Broker

Customizable research missions using both transport vehicles and CLDs



Model 3: Innovation Campus

Modern terrestrial campus with workforce focus



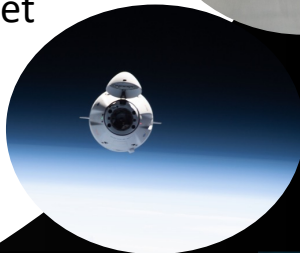
Model 4: Matchmaker

Neutral third party connecting users to platforms



Model 5: Institute Network

Network of separate but related efforts to enable commercial scaling and U.S. leadership



Model 6: Fee for Service

Free market approach with coordinated grants and data/service buys